

CLAIMS

What is claimed is:

- 1 1. A system for configuring an automatic test system to produce a plurality of clocks
2 from a reference clock via dividers coupled to the reference clock, comprising:
3 an interface having a plurality of inputs for specifying desired frequencies of the
4 plurality of clocks; and
5 software, operative in response to the interface, for calculating values of dividers,
6 for establishing the desired frequencies of the plurality of clocks.
- 1 2. A system as recited in claim 1, wherein the interface comprises at least one input
2 for specifying the frequency of at least one of the plurality of clocks as a function of at
3 least one other of the plurality of clocks.
- 1 3. A system as recited in claim 1, wherein the interface comprises inputs for
2 specifying timing characteristics of instruments of the test system.
- 1 4. A system as recited in claim 3, further comprising error checking code for
2 comparing the specified timing characteristics of the instruments with stored data
3 indicative of capabilities of the instruments.
- 1 5. A system as recited in claim 4, wherein the interface further includes a window
2 for displaying error messages generated by the error checking code in response to the
3 specified timing characteristics being incompatible with the capabilities of the
4 instruments.
- 1 6. A system as recited in claim 3, further comprising code for calculating the desired
2 frequency of at least one of the plurality of clocks in response to the inputted timing
3 characteristics of the instruments.

1 7. A system as recited in claim 1, wherein
2 the software produces output indicative of the calculated values of said dividers,
3 and
4 the interface further comprises a display of the calculated values of said dividers.

1 8. A system as recited in claim 7, wherein the interface further comprises a display
2 of prime factors of the calculated values of said dividers.

1 9. A system as recited in claim 1, wherein the interface further comprises inputs for
2 assigning different ones of the plurality of clocks to groups within which coherency must
3 be maintained.

1 10. A method for configuring an automatic test system to produce a plurality of
2 clocks from a reference clock, comprising:
3 receiving a plurality of inputs specifying desired frequencies of the plurality of
4 clocks; and
5 calculating, in response to the received inputs, values of dividers coupled to the
6 reference clock, for establishing the desired frequencies of the plurality of clocks.

1 11. A method as recited in claim 10, further comprising specifying the desired
2 frequency of at least one of the plurality of clocks as a function of at least one other of the
3 plurality of clocks.

1 12. A method as recited in claim 10, further comprising specifying timing
2 characteristics of at least one instrument of a test system.

1 13. A method as recited in claim 10, wherein the timing characteristics include any of
2 an instrument's sampling rate, frequency of interest, frequency divider values, frequency
3 multiplier values, and frequency resolution.

1 14. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's sampling rate as a
3 function of a timing characteristic of another instrument.

1 15. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's frequency of
3 interest as a function of a timing characteristic of another instrument.

1 16. A method as recited in claim 13, wherein the inputs for specifying timing
2 characteristics include at least one input for specifying an instrument's frequency
3 resolution as a function of a timing characteristic of another instrument.

1 17. A method as recited in claim 12, further comprising comparing the specified
2 timing characteristics for an instrument with stored data indicative of capabilities of the
3 instrument.

1 18. A method as recited in claim 17, further including displaying error messages
2 generated by the comparing step, in response to the specified timing characteristics being
3 incompatible with the capabilities of the instrument.

1 19. A method as recited in claim 13, further comprising calculating a desired clock
2 frequency for driving an instrument based upon the inputted timing characteristics for
3 that instrument.

1 20. A method as recited in claim 10, further comprising displaying output indicative
2 of calculated values of said dividers.

1 21. A method as recited in claim 20, further comprising displaying prime factors of
2 the calculated values of said dividers.

1 22. A method as recited in claim 10, wherein desired clock frequencies are related by
2 ratios that ensure coherent testing, and further comprising modifying the desired clock
3 frequencies to precisely maintain the ratios, in instances wherein the test system cannot
4 meet the inputted ratios at the desired frequencies.

1 23. A method as recited in claim 22, further comprising:
2 assigning different ones of the plurality of clocks to groups, and
3 modifying the desired frequencies of clocks assigned to the same group to
4 precisely maintain the inputted ratios between clock frequencies in the same group.

1 24. A method as recited in claim 10, wherein the receiving step includes receiving an
2 input for each of the desired frequencies in the form of a rational numerator divided by a
3 rational denominator.

1 25. A method as recited in claim 10, further comprising generating test program code
2 for programming the plurality of dividers within the automatic test system to assume the
3 calculated values.

1 26. A method as recited in claim 25, further comprising storing the test program code
2 in a test program for running on the automatic test system.

1 27. An automatic test system, comprising:
2 a reference clock;
3 a plurality of dividers coupled to the reference clock, for generating a plurality of
4 clocks derived from the reference clock;
5 a user interface having a plurality of inputs for specifying desired frequencies of
6 the plurality of clocks; and
7 software, operative in response to the user interface, for calculating values of the
8 plurality of dividers to establish each of the desired clock frequencies from the reference
9 clock.

1 28. An automatic test system as recited in claim 27, further comprising configuration
2 generating code, operative in response to the user interface, for generating test program
3 code for configuring the plurality of dividers within the automatic test system to assume
4 the calculated values.

1 29. A method of testing a device under test (DUT) in an automatic test system having
2 a reference clock and a plurality of dividers for deriving a plurality of clocks from the
3 reference clock, comprising:

4 receiving a plurality of inputs for specifying desired frequencies of the plurality of
5 clocks;

6 calculating, in response to receiving the plurality of inputs, values of the dividers
7 for establishing each of the desired clock frequencies;

8 configuring the plurality of dividers to supply the desired clock frequencies;

9 applying a signal to the DUT under control of a first of the plurality of clocks;

10 sampling a signal from the DUT under control of a second of the plurality of
11 clocks; and

12 comparing sampled values with expected values to determine whether the DUT
13 passes or fails.